

**Solve each problem using the Counting Principle or Permutations. Show your work!**

**1) James ate at the Taco Hut, where he could choose a main entrée, a side, and a beverage. For his main entrée, he could choose from Tacos, Burritos, and Enchiladas. He could pick one side from either rice or beans. For his beverage, James is only allowed to drink milk or water (his parents are really strict). How many menu choices could James choose from?**

**2) Richard, Noah, Jennifer and Sarah ran in a race. In how many different orders could they finish the race?**

**3) In how many different ways can Nicole, Nick, Taylor, Julia, Grace, Jon and Ryan stand in a line for a photo?**

**4) Suzy had 4 shirts, 6 pairs of pants, and 3 pairs of shoes. How many outfits could she put together with these clothing items?**

**5) How many ways could a president and vice-president be selected from a class of 27 students?**

**6) How many different ways can you arrange the letters in the word SCRAMBLE?**

**7) Valerie's art teacher assigned a project in which students had to use exactly 3 colors from the following choices: red, yellow, blue, purple, green and orange. How many ways can Valerie use exactly three colors from the choices?**

**8) How many different ways can Isaac, Austin, Oscar, Eugene and Ursala stand in a line?**

**9) How many six digit numbers can you make by arranging the numbers 1, 6, 8, 9, 2 and 3?**

**10) Cassie, Quinn, Matt and Noah were running in a race. In how many different orders could they finish the race?**

**11) Claire was buying a new cell phone. She could pick from black, silver, red, blue or gold. She also wanted a case for it. The cases came in clear, black or neon orange. How many ways could she combine a cell phone with a case?**

**12) Donnie loves Girl Scout cookies. He ordered 7 different kinds. How many different ways could he line up his cookies on the shelf?**

**13) Mrs. Trendel likes to have classroom jobs. How many ways could a hall-monitor, a chalkboard washer, an attendance checker and an recycling manager be chosen from her class of 30 students?**

**14) Mrs. Koenig was planning a dinner party. For the main course, guests could choose chicken ala king or beef stew. The sides were salad, soup or baked beans. Guests could have soda, water or milk to drink. How many menu choices are available if guests chose one main course, one side and one drink?**

**15) How many ways can Mr. Sievert choose a starting line up (5 players) if there are 12 players altogether on the team?**

**16) How many 4 digit numbers can you make using the numbers 7, 4, 2 and 9?**